



Mile-A-Minute Weed

Polygonum perfoliatum L.

Buckwheat family (Polygonaceae)

NATIVE RANGE

India to Eastern Asia, China and the Islands from Japan to the Phillipines, including Nepal, Burma, Manchuria, China, Korea, Taiwan and the Malay Peninsula

DESCRIPTION

Mile-a-minute weed, also known as Devil's tail tearthumb, is an herbaceous, annual, trailing vine. It has a reddish stem that is armed with downward pointing hooks or barbs which are also present on the underside of the leaf blades. The light green colored leaves are shaped like an equilateral (equal-sided) triangle and alternate along the narrow, delicate stems. Distinctive circular, cup-shaped leafy structures, called ocreas, surround the stem at intervals. Flower buds, and later flowers and fruits, emerge from within the ocreas. Flowers are small, white and generally inconspicuous. The fruits are attractive, metallic blue and segmented, each segment containing a single glossy, black or reddish-black seed.



ECOLOGICAL THREAT

Mile-a-minute weed grows rapidly, scrambling over shrubs and other vegetation, blocking the foliage of covered plants from available light, and reducing their ability to photosynthesize, which stresses and weakens them. If left unchecked, the lack of photosynthesis will kill a plant. Large infestations of mile-a-minute weed eventually reduce native plant species in natural areas. Small populations of extremely rare plants may be eliminated entirely. Because it can smother tree seedlings, mile-a-minute weed has a negative effect on Christmas tree farms, forestry operations on pine plantations and reforestation of natural areas. It has the potential to be a problem to nursery and horticulture crops that are not regularly tilled as a cultivation practice.



DISTRIBUTION IN THE UNITED STATES

Mile-a-minute weed is currently found in Pennsylvania, Maryland, Delaware, West Virginia, New York, Virginia, Ohio and Washington, D.C. These states and the District of Columbia comprise about 20 percent of the estimated possible range for this species. It is considered a temperate species with subtropical tendencies and therefore has the potential to invade those portions of the contiguous United States that have the appropriate climate to provide a minimal eight week cold vernalization period. A temperature of 10°C or below must be sustained for an eight week period to stimulate germination.

HABITAT IN THE UNITED STATES

Mile-a-minute weed generally colonizes open and disturbed areas, along the edges of woods, wetlands, stream banks, and roadsides, and uncultivated open fields, resulting from both natural and human causes. Natural areas such as stream banks, parks, open space, road shoulders, forest edges and fence lines are all typical areas to find mile-a-minute. It also occurs in environments that are extremely wet with poor soil structure. Available light and soil moisture are both integral to the successful colonization of this species. It will tolerate shade for a part of the day, but needs a good percentage, 63-100% of the available light. The ability of mile-a-minute to attach to other plants with its recurved barbs and climb over the plants to reach an area of high light intensity is a key to its survival. It can survive in areas with relatively low soil moisture, but demonstrates a preference for high soil moisture.

BACKGROUND

The first records of mile-a-minute in North America are from Portland, Oregon (1890) and Beltsville, Maryland (1937). Both of these sites were eliminated or did not establish permanent populations of the species. However, the introduction of mile-a-minute in the late 1930's to a nursery site in York County, Pennsylvania did produce a successful population of this plant. It is speculated that the seed was spread with Rhododendron stock. The owner of the nursery was interested in the plant and allowed it to reproduce; unfortunately, subsequent efforts to eradicate it were not successful. The distribution of mile-a-minute has radiated from the York County site into neighboring states. In the past 55 years, the range for this plant in the United States has extended as far as 300 miles in several directions from the York County, Pennsylvania site (Mountain, 1995) and (Okay 1997).

BIOLOGY & SPREAD

Mile-a-minute weed is primarily a self-pollinating plant (supported by its inconspicuous, closed flowers and lack of a detectable scent), with occasional outcrossing. Fruits and viable seeds are produced without assistance from pollinators. Vegetative propagation from roots has not been successful for this plant. It is a very tender annual, withering with a slight frost, and reproduces successfully until the first frost. Mile-a-minute is a prolific seeder, producing many seeds on a single plant over a long season, from June until October in Virginia, and a slightly shorter season in more northern geographic areas.

Birds are probably the primary long-distance dispersal agents of mile-a-minute weed. Transport of seeds short distances by native ant species has been observed. This activity is probably encouraged by the presence of a tiny white food body (elaiosome) on the tip of the seed that may be attractive to the ants. These seed-carrying ants may play an important role in the survival and germination of the seeds of mile-a-minute weed. Local bird populations are important for dispersal under utility lines, bird feeders, fence lines and other perching locations. Other animals observed eating mile-a-minute weed fruits are chipmunks, squirrel and deer.

Water is also an important mode of dispersal for mile-a-minute weed. Its fruits can remain buoyant for 7-9 days, an important advantage for dispersing seed long distances in stream and river environments. The long vines frequently hang over waterways, allowing fruits that detach to be carried away in the water current. During storm events the potential spread of this plant is greatly increased throughout watersheds.

MANAGEMENT OPTIONS

A variety of control measures, including physical, mechanical, cultural and chemical, can be used for management of mile-a-minute weed. Hand pulling of seedlings is best done before the recurved barbs on the stem and leaves harden. But may be done afterwards with the help of thick gloves. Removal of vines by hand may be conducted throughout the summer, if tough gloves and protective clothing (coveralls) are worn to avoid the skin shredding ability of the recurved hooks. The delicate vines can be reeled in fairly easily and balled up in piles that can be left to dehydrate for several days before disposal. The site must be rechecked at frequent intervals, and removal of new plants continued until the seed germination period is complete, roughly early April until early July in the middle Atlantic states. Repeated mowing or trimming of mile-a-minute plants will prevent the plants from flowering and thus reduce or eliminate fruit and seed production.

Cultural methods can be utilized to discourage the introduction of mile-a-minute to an area. It is important to maintain vegetative community stability and to avoid creating gaps or openings in existing vegetation. Maintaining broad vegetative buffers along streams and forest edges will help to shade out and prevent establishment of mile-a-minute weed. This will also help to reduce the dispersal of fruits by water.

An herbicidal soap, of which there are several brands available at most garden centers, will help to burn back foliage of mile-a-minute. Because these products do not have the systemic (ie., travels to the roots) ability of herbicides like glyphosate, they will need to be reapplied all season long to any regrowth. Glyphosate (e.g., Roundup® for upland areas and Rodeo® for wetland applications), applied at a low rate will probably be effective in killing mile-a-minute weed. However, because this plant is not currently listed on the product labels for Roundup® or Rodeo®, treatments with these products is permissible only with prior approval of the State Department of Agriculture where the application will take place [FIFRA 1997, Section 2(z)(ee)].

USE PESTICIDES WISELY: Always read the entire pesticide label carefully, follow all mixing and application instructions and wear all recommended personal protective gear and clothing. Contact your state department of agriculture for any additional pesticide use requirements, restrictions or recommendations.

NOTICE: mention of pesticide products on this page does not constitute endorsement of any material.

CONTACT

For more information on the management of Mile-A-Minute Weed, please contact:

- Judy Okay, Virginia Department of Forestry, 12055 Government Center Parkway, Fairfax, VA 22035; 703-324-1480
- Sue Salmons, National Park Service, Rock Creek Park, Washington, DC; 202-426-6834, ex. 33
- Jil Swearingen, National Park Service, National Capital Region, Washington DC; 202-342-1443, ex. 218

OTHER LINKS

- <http://www.invasive.org/search/action.cfm?q=Polygonum%20perfoliatum>
- <http://www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=13>

AUTHOR

Judith A. Gerlach Okay, Virginia Department of Forestry, Fairfax, VA

EDITOR

Jil M. Swearingen, National Park Service, Washington, DC

PHOTOGRAPHS

Jil M. Swearingen, National Park Service, Washington, DC

REFERENCES

- Gruber, Alfred. 1995. Unpublished. Polygonums - Mile-a-minute weed and Mile-a-minute vine. Mile-a-minute (*Polygonum perfoliatum*) Conference. York, Pennsylvania, July.
- Hill, Robert J., G. Springer, and L.B. Forer. 1981. Mile-a-minute, *Polygonum perfoliatum* L. (Polygonaceae), a New Potential Orchard and Nursery Weed. Regulatory Horticulture 7(1). Pennsylvania Dept. of Agriculture.
- McCormick, L.H. 1995. Mile-a-minute Control in Reforestation. Mile-a-minute (*Polygonum perfoliatum*) Conference. York, Pennsylvania, July.
- Moul, E.T. 1948. A dangerous weedy Polygonum in Pennsylvania. Rhodora 50:64-66.
- Mountain, W. L. 1995. Mile-a-minute - History Distribution and Habitat. Mile-a-minute (*Polygonum perfoliatum*) Conference. York, Pennsylvania, July.
- Okay, J.A. Gerlach. 1997. *Polygonum perfoliatum*: A Study of Biological and Ecological Features Leading to the Formation of a Management Policy. Ph.D. Dissertation. George Mason University Fairfax, VA.
- Park, C.W. 1986. Taxonomy of Polygonum section Echinocaulon. Ph.D. Thesis, Cornell, University.
- Swearingen, Jil. 1991. Seed dispersal by ants. The Maryland Natural Naturalist, vol. 35, no.1-4. pp. 31-39.